

Notice of Allowability**Application No.**

09/966,719

Applicant(s)

MIYATANI ET AL.

Examiner

Phillip A Johnston

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment dated 10-20-2003.
2. ☒ The allowed claim(s) is/are 1, 2, 5-12, 14-25, 27, 28 and 34-36.
3. ☒ The drawings filed on 27 September 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1 <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 2 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 4 <input checked="" type="checkbox"/> Interview Summary (PTO-413), Paper No. <u>1103</u> |
| 5 <input type="checkbox"/> Information Disclosure Statements (PTO-1449), Paper No. _____ | 6 <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 7 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9 <input type="checkbox"/> Other |

Detailed Action

Examiners Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Bruce Adams on 10-29-2003. The changes made below are underlined.

The Claims are amended as follows

-- 11. (previously presented) A scanning probe microscope which observes microscopic structures on a sample surface, comprising: a probe responsive to an atomic force generated when brought into close proximity to the sample surface; scanning means for performing raster scanning of the probe along a first scanning axis substantially parallel to the sample surface and a second scanning axis substantially parallel to the sample surface and orthogonal to the first scanning axis of the sample surface and maintaining the probe in close proximity to the sample to cause the probe to move relatively in the direction of a third scanning axis orthogonal to both the first scanning axis and the second scanning axis so as to follow undulations on the sample surface; scanning control means for controlling relative raster scanning of the probe

with respect to the sample; displacement detection means for measuring relative position and displacement of the probe relative to the sample by measuring displacement of the scanning means in the direction of the second scanning axis or the third scanning axis and outputting a feedback signal based on the detected position and displacement, the feedback signal being used for controlling the probe position; a storage device for storing detection results of the displacement detection means; and a computer for generating an observation image of the sample surface based on the relative position or displacement of the probe with respect to the sample for each of the scanning axes saved in the storage device; wherein the displacement detection means simultaneously detects the relative position or displacement of the probe with respect to the sample in the direction of the first scanning axis, the second scanning axis and the third scanning axis; wherein the scanning control means performs raster scanning control such that a scanning range of the sample surface in a direction of the scanning axis having the higher scanning frequency of the first scanning axis and the second scanning axis is larger than and includes a range of the sample surface being observed; wherein the displacement detection means commences sampling and storage of relative position and displacement values of the probe relative to the sample in a direction of the first scanning axis, the second scanning axis and the third scanning axis at a predetermined sampling period, at the time the relative position and displacement of the probe with respect to the sample in a direction of the scanning axis having the higher scanning frequency of the first scanning axis and the second scanning axis enter a range being observed; and

wherein the scanning control means receives the feedback signal and performs feedback control in accordance therewith so that rate of change over time of the relative position and displacement of the probe with respect to the sample in the direction of a scanning axis having the higher scanning frequency of the first scanning axis and the second scanning axis of the raster scanning become a set value and remains at that value until the relative position and displacement of the probe with respect to the sample in the direction of the scanning axis having the higher scanning frequency enter a range being observed. --

Examiner's statement of reasons for allowance

The following is an examiner's statement of reasons for allowance:

1. Claims 1,11,12, and 25 are allowed because Prior art fails to show a scanning probe microscope that uses a scanning controller to hold constant or maintain at a set value, the rate of change in probe displacement in one scanning direction, as the probe enters the area to be sampled.
2. Claims 2, 5-10, 14-24,27,28, and 34-36 are allowed because they are dependent upon allowed Claims 1,11,12, and 25.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

3. Any inquiry concerning this communication or earlier communications should be directed to Phillip Johnston whose telephone number is (703) 305-7022. The examiner can normally be reached on Monday-Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor John Lee can be reached at (703) 308-4116. The fax phone numbers are (703) 872-9318 for regular response activity, and (703) 872-9319 for after-final responses. In addition the customer service fax number is (703) 872- 9317.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

PJ
November 3, 2003


JOHN R. LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2000